

Appl. No. 10/560,569
Amdt. Dated May 23, 2007
Reply to Office Action of January 23, 2007

Attorney Docket No. 81880.0134
Customer No.: 26021

REMARKS/ARGUMENTS

Claims 1, 4 and 9 are amended. New claim 14 is added. Claims 10 and 12 are canceled without prejudice. Support for the amendment to claim 1 can be found at p. 18, lines 15-27 and Fig. 1A of the Specification. Support for the amendment to claim 4 can be found at p. 22, line 29-p. 23, line 3 and Fig. 3 of the Specification. Support for the amendment to claim 9 can be found at p. 32, lines 5-14 of the Specification. Support for new claim 14 can be found at p. 14, line 27-p. 15, line 2 of the Specification. Claims 1-9, 11, 13 and 14 are pending in the application. Reexamination and reconsideration of the application, as amended, are respectfully requested.

The present invention relates to an optical receptacle usable for an optical communication module or the like. (*See, Specification, p. 1, lines 5-6*).

INFORMATION DISCLOSURE STATEMENT

Applicant thanks the Examiner for accepting and considering the IDS filed December 12, 2005.

PRIORITY

Applicant thanks the Examiner for acknowledging Applicant's claim to foreign priority.

DRAWINGS

Applicant thanks the Examiner for accepting the drawings filed on December 12, 2005 as part of the formal application.

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SPECIFICATOIN

Applicant thanks the Examiner for accepting the Specification as part of the formal application.

CLAIM REJECTIONS UNDER 35 U.S.C. § 102

Claims 1-5, stand rejected under 35 U.S.C. § 102(b) as being anticipated by Chisako (J.P. Patent Pub. No. 10-332988). Claims 1 and 4 have been amended. The Applicant respectfully traverses this rejection as to the amended claims.

Claim 1, as amended, is as follows:

An optical receptacle comprising:
a fiber stub having a ferrule and an optical fiber in
a through-hole of the ferrule;
a holder to which a rear end of the fiber stub is
directly fixed; and
a sleeve for holding a plug ferrule in front of the
fiber stub;
wherein a grip ring is provided on an outer side
face in which the fiber stub and the sleeve are overlapped
to each other.

Applicant respectfully submits that Chisako cannot anticipate or render obvious amended independent claim 1, because Chisako fails to teach or suggest “a holder to which a rear end of the fiber stub is directly fixed.”

It is an aspect of the present invention that the fiber stub 1 can be securely fixed directly to the holder 5 using press insertion or adhesives, thereby preventing the fiber stub 1 from misaligning due to a pressing load during attachment and detachment of the plug ferrule PF. (See, *Specification p. 18, lines 15-27; Fig. 1A*).

In contrast, Chisako discloses an optical receptacle (1), which includes an elastic sleeve (15), a grip ring (13) that is inserted onto the outer periphery of the

base end part of the elastic sleeve (15), and a ferrule (17) fixed to a holder (11) via the grip ring (13) (*See, Chisako, para. 7-10; Figs 1*).

Applicant respectfully submits that since Chisako discloses the grip ring (13) is inserted and fixed into the holder (11), the sleeve (15) is over-constricted. Therefore, as discussed in the Specification, when a plug ferrule is inserted into or extracted from the sleeve, the sleeve is likely to be deformed unevenly, thereby rendering the force on the sleeve for holding the plug ferrule unstable. However, in the present invention, as defined by amended independent claim 1, the rear end of the fiber stub 1 is directly fixed to the holder 5 without any grip ring 11. Hence, the fiber stub 1 can be rigidly fixed without causing such a large stress as to deform the sleeve 4, thereby stabilizing the holding force of the sleeve, and improving wiggle characteristics. (*See, Specification, p. 5, lines 1-18; p. 18, lines 16-27; Fig. 1a*)

In view of the forgoing, Applicant respectfully submits that Chisako fails to disclose, teach or suggest "a holder to which a rear end of the fiber stub is directly fixed," as required by amended claim 1.

In light of the foregoing, Applicant respectfully submits that, Chisako could not have anticipated or rendered obvious claim 1, because the cited references fail to teach or suggest each and every claim limitation. Claims 2 and 3 depend from claim 1 and therefore, cannot be anticipated or rendered obvious for at least the same reasons as claim 1. Withdrawal of these rejections is thus respectfully requested.

Claim 4, as amended, is as follows:

An optical receptacle comprising:
a fiber stub having a ferrule and an optical fiber in
a through-hole of the ferrule;
a holder to which an rear end of the fiber stub is
fixed; and
a sleeve for holding a plug ferrule connectable with
a front face of the fiber stub, the sleeve being holding a
front end of the fiber stub;
wherein the sleeve has a thicker portion integrally
formed at an end of the sleeve, and the fiber stub is
inserted on the side of the thicker portion.

Applicant respectfully submits that Chisako cannot anticipate or render obvious amended independent claim 4, because Chisako fails to teach or suggest that the sleeve "has a thicker portion integrally formed at an end of the sleeve, and the fiber stub is inserted on the side of the thicker portion."

It is an other aspect of the present invention that in the sleeve 4, as shown in FIG. 3, the outer face thereof at the end portion on the insertion side of the fiber stub 1 can be machined stepwise to have a thicker portion 4a. A thickness of which can be larger than a thickness of the portion for holding the plug ferrule PF, thereby enhancing grip force of the thicker portion 4a. This thicker portion can allow for a sufficient holding force to be obtained, even when the holding portion for the fiber stub 1 is shortened, and for the insertion force of the plug ferrule PF can be maintained to an appropriate level. Since there is no grip ring for restricting free deformation of the sleeve 4, the sleeve can be freely deformed during insertion and extraction of the plug ferrule PF into the sleeve 4, and insertion force and extraction force are stabilized, resulting in fine attach ability and detachability. (See, *Specification, p. 22, lines 1-6; p. 22, lines 24-28; p. 25, lines 21-27; Fig. 3*)

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Applicant respectfully submits that claim 4 requires the sleeve to have a thicker portion that is integrally formed at an end of the sleeve, for example by machining the sleeve. In contrast, Chisako discloses an optical receptacle with a grasping ring 13', that is separate from sleeve 15 (*See, Chisako, Fig. 3; para. 15*). A grasping ring that is separate from a sleeve cannot be said to disclose, teach or suggest a sleeve that "has a thicker portion integrally formed at an end of the sleeve, and the fiber stub is inserted on the side of the thicker portion," as required by amended independent claim 4.

In light of the foregoing, Applicant respectfully submits that, Chisako could not have anticipated or rendered obvious claim 4, because the cited references fail to teach or suggest each and every claim limitation. Claim 5 depends from claim 4 and therefore, cannot be anticipated or rendered obvious for at least the same reasons as t claim 4. Withdrawal of these rejections is thus respectfully requested.

CLAIM REJECTIONS UNDER 35 U.S.C. § 103

Claims 6 and 7 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Chisako. Claims 6 and 7 depend from amended claim 4, and as such include all the limitations there of, and are therefore patentable over Chisako for at least the same reasons discussed above with regard to claim 4. Withdrawal of these rejections is thus respectfully requested

Claim 8 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Chisako in view of Kato (U.S. Patent Pub. No. 2004/0076384). Claim 8 depends from amended claim 4, and as such includes all the limitations thereof, and is therefore patentable over Chisako for at least the same reasons discussed above with regard to claim 4. Kato is not seen to remedy the defects of Chisako and the

Office does not rely upon the references for such. Instead, Kato is cited for its relevance regarding chamfering in an optical module.

In light of the foregoing, Applicant respectfully submits that, Chisako and Kato could not have anticipated or rendered obvious claim 8, because the cited references fail to teach or suggest each and every claim limitation. Withdrawal of these rejections is thus respectfully requested.

Claims 9, 11 and 13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kato. Claim 9 has been amended. Applicant respectfully traverses the rejection as to the amended claims.

Claim 9, as amended, is as follows:

An optical receptacle comprising:
a ceramic precision sleeve for holding a plug ferrule,

wherein a metal holder is provided at a rear end of the precision sleeve, and a flange which is electrically insulated from the metal holder is provided on an outer face of the precision sleeve separately from the metal holder.

Applicant respectfully submits that Kato fails to disclose, teach or suggest “a flange which is electrically insulated from the metal holder is provided on an outer face of the precision sleeve separately from the metal holder,” as required by amended independent claim 9.

It is an aspect of the present invention that the a precision sleeve 4, made of a ceramic material, such as zirconia, alumina, is pressed and fixed into a holder 5, made of stainless steel with good weldability, such as SUS304. A flange 12 can be fixed by press insertion or adhesives so as not to come in contact with the holder 5. A metal ferrule stopper 13 is pressed and fixed into the inner face of the sleeve 4. In this structure, the flange 12 and the holder 5 are electrically insulated from each

other. When such an optical receptacle 7 is used for both of transmission and reception, in optical modules used as an optical transmitter and receiver, even when these are fixed together in a metal housing, there is no problem that, electric signals for driving the transmitting optical module may leaked out through the metallic optical receptacle to the metal housing, causing noise on the receiving optical module, and electromagnetic waves may be generated by an antenna composed of the metal sleeve 4 for transmitting, and the metal sleeve for receiving may pick up an external noise, thereby degrading sensitivity for receiving, resulting in excellent noise characteristics. (*See, Specification, p. 32, lines 6-29; Fig. 7*)

In contrast, Kato is characterized, at p. 7 of the Office Action, as disclosing optical modules (2 and 2b) which include a ceramic precision sleeve (99 and 107) with a flange (99d and 107f) integrally formed, and a metal holder coupled (34) onto the end of the precision sleeve (99 and 107). (*See, Kato, p. 6, para. 88-90; Figs. 11a and 13*)

Applicant respectfully submits that Kato also discloses that the metal holder (34) abuts onto sleeves (99 and 107), which comprise integrally formed flanges (99d and 107f) which protrude out of sleeves (99 and 107). This is used to position the holder (34) in relation to sleeves (99 and 107) and therefore ensuring the proper positioning of optical component (30). The metal holder (34) is then physically secured to sleeves (99 and 107). (*See, Kato, p. 5, para 82-83, p. 6; para. 85, 89-91 and 99; Figs. 11a and 13*)

As such, in order to ensure the flanges (99d and 107f) are electrically insulated from the metal holder (34), the precision sleeves (99 and 107) must be formed of an electrical insulating material, such as ceramics, thereby lowering the number of design possibilities. In addition, the precision sleeves (99 and 107) and

the metal holder (34) are joined to each other using welding or adhesives, thereby causing a concentration of stress in the joint area between the different members.

However, Applicant's present invention as defined by claim 9 requires the flange to be located separately from the metal holder. This helps to ensure electric insulation between the flange and the metal holder and, thereby increases the types of material that can be selected for the flange, while easily achieving electric insulation between the flange and the metal holder.

In view of the foregoing, Applicant respectfully submits that Kato fails to disclose, teach or suggest "a flange which is electrically insulated from the metal holder is provided on an outer face of the precision sleeve separately from the metal holder," as required by amended independent claim 9. In addition, because Kato discloses an optical module where, the connecting of a sleeve, which comprises a flange, and a metal holder is required for the proper positioning and securing of the components, Kato can be said to teach away from any modification or combination that would remedy this deficiency.

In light of the foregoing, Applicant respectfully submits that, Kato could not have rendered independent claim 9, because the cited references fail to teach or suggest each and every claim limitation. Claim 11 and 13 depend from claim 9 and therefore, cannot be rendered obvious for at least the same reasons as amended independent claim 9. Withdrawal of these rejections is thus respectfully requested.

Claims 10 and 12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kato in view of Yamabayashi (U.S. Patent No. 7,059,780). Applicant respectfully traverses these rejections.

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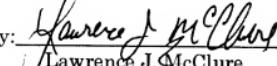
Claims 10 and 12 have been canceled without prejudice, thus the rejection against those claims is now moot.

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Reexamination and reconsideration of the application, as amended, are requested.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los Angeles, California telephone number (310) 785-4600 to discuss the steps necessary for placing the application in condition for allowance.

If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1314.

Respectfully submitted,
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